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(54) Title: TELEPHONE CALL SIGNALING PROCESS VIA INTERNET, SIMILAR TO CALLBACK, SUPPORTED BY APPLICATIONS SUCH AS COMPUTER ADDRESS BOOKS FOR SINGLE AND MULTI-USER

(57) Abstract: Patent of Invention process for signaling "callback" type phone calls, via Internet, supported by a phone book type application for single or multi-user computers, refers to a process that allows to the user to make phone calls of the "callback" type with the aid of the Internet, which reduces substantially the time for connection, eliminates the need for additional high cost equipment ("hardware"), the need for making uncompleted calls, and the need for Internet Browsers to process calls. Through a "phone book" type application, idealized for computer nets or for single user computers having access to the Internet, the user must just dial the number he wants to call or click with the mouse on a pre-stored number and the ready call (calling in the user-chosen phone), is given in the ordinary telephone of the user in a few seconds.

"TELEPHONE CALL SIGNALING PROCESS VIA INTERNET, SIMILAR TO CALLBACK, SUPPORTED BY APPLICATIONS SUCH AS COMPUTER ADDRESS BOOKS FOR SINGLE AND MULTI-USER"

The present patent of invention refers to a process that allows the user to make phone calls of the "callback" type with the aid of the Internet, what reduces substantially the time for connection, eliminates the need for additional high cost equipment ("hardware"), the need for making of uncompleted calls and the need for Internet browsers to process calls. Through a "phone book" type application, idealized for computer nets or for single user computers having access to the Internet, the user must just dial the number he wants to call or click with the mouse on a pre-stored number and the ready call (calling in the destination phone chosen by the user), is given in the ordinary telephone of the user in a few seconds.

As it is known by the technicians and users of the telecommunications branch, at present several forms of making a phone call exist:

By the *conventional process*, the user picks up the phone, dials or types the wished number in his telephone or PABX, and his call is completed by the phone company available in his area, and he even can, in case that several companies are available, choose through a numeric code added to the dialed number the company of his convenience, although into a limited range of companies available in his area. This system presents the disadvantages of demanding hand dialing, what represents a loss of time and eventual dialing errors, besides a larger cost for the user, for there being less companies competing in his regional market.

These calls made by the *conventional process* can also be facilitated by several computer applications, like a phone agenda that use a modem installed in the user's computer to call a telephone number. In this case, we have a greater safety in the number dialing, but the call is still conventional, owing the operator to use the phone company (or one of the phone companies) available in his area, undergoing in most of the cases to a non competitive prices, if compared with that of phone companies of another areas or countries.

In the "callback" modality of phone call, that appeared to benefit the telephony users with the price options of worldwide phone companies, the user makes his call through an "in call" (received) in his conventional phone line or PABX, such connection is supplied by the phone company chosen by

the user worldwide, what facilitates his option for the lowest phone taxes available in any city or country.

The connection processes like "callback" phone call now existent can be made in the following ways:

- a) By *traditional "callback"*: Initially, the process appeared in that the user makes a phone call to a number made available by the company chosen to supply "callback" service, awaits the phone rings once, and hang up the telephone. This uncompleted call signals a switch of the phone company that the user wants to accomplish a "callback". The company then calls for the user, that receives, after five to fifteen seconds of the initial uncompleted call, a call from the phone company, awaits the dial tone, and finally dial to the wanted number, paying a smaller tax. This process presents the disadvantages inherent to the manual process of dialing, a great time to accomplish all these operations, besides demanding the making of a uncompleted call, what can even, in the point of view of some phone companies, overload its telephonic nets without paying for that, what made some countries to consider illegal the accomplishment of this process to signal "callback" type connections.
- b) By *automatic "callback" by means of dialers and uncompleted calls*: Later on, the "callback" process was facilitated by equipment (traditionally called dialers), that can be installed in a common phone line of common telephone or in the trunks of a PABX. An example of this type of equipment: AXS from Telcom Research. To accomplish a call the user dials the wanted telephone number, either in his conventional telephone or in the phone extension of his PABX, automatically the dialer accomplishes an uncompleted call to the phone company supplier of the "callback" service, awaits the phone rings once, hang up the phone, receives a call from the "callback" supplier, gets the dial tone, dials the phone number supplied by the user and gives him the ready connection (calling in the destiny). This process with dialers represents a progress in relation to that described previously, because the call is accomplished without demanding special procedures on the part of the users. This allows a simpler connection, but the dialers don't decrease substantially the time to complete a call and they don't eliminate the main problem of the previously described "callback" process: the accomplishment of an uncompleted call to make every call.

- c) By *"automatic callback" by means of "software", modem and uncompleted calls*: In competition with the dialers described in b), there appeared computer applications that use a modem installed in the user's computer to accomplish "callback" services. The user dials the wanted telephone number in the computer keyboard, automatically the application interacts with the modem to accomplish an uncompleted call to the phone company supplier of the "callback", awaits to ring once, hang up the phone, receives a call from the "callback" supplier, dial the telephone number supplied by the user and gives him a ready connection (calling in the destiny). Again, it happens a simpler connection, but even this type of application doesn't decrease significantly the time to complete a call and doesn't eliminate the need for an uncompleted call to make a connection.
- d) By *automatic "callback" by means of dialers and data nets*: Later on, There appeared equipment (dialers), that have the option of signaling the "callback" from the Internet or from another types of nets, like for example: X-25. In this case, to accomplish a call the user dials the wanted telephone number, in his conventional telephone or in the extension line of his PABX. Automatically, the dialer sends a data package containing the information of the customer and of the destiny he wants to call to the phone company supplier of the "callback" service, via Internet (or via X-25), then the company calls the customer's telephone and gives him a ready connection (calling in the destiny), avoiding the previous need for an uncompleted call and providing larger speed and safety to the calls. An example of this type of equipment is Mega Link from Telcom Research. However, this system demands a high cost "hardware", a computer, a 24 hours net connection (Internet or X-25), besides a group of "software" to manager the dialer and the computer-dialer interface and specialized technical services for installation and maintenance. For this reason, this system is only viable for companies that need to do a great number of connections, not being adequate for small companies or domestic users. This system is also difficult to demonstrate for probable customers, due to the size of the equipment, to the computer, "software", net connection and specialized technical service demanded for installation.
- e) By *automatic "callback" by means of internet browsers, internet html pages and signaling through Internet*: In competition with the type of dialer described in d), there appeared pages (sites) in the "World Wide Web", dedicated to process "callback" calls. An example can be found in <http://207.177.51.7/icb/> (a service of the USA Global Link called "Instant

Web Call”). To accomplish a call, the user: Access a site in the Internet (what can be a delayed task), supplies a password, awaits the password verification finally informs the telephone he wants to call. The site html pages sends the customer's data to the “callback” supplier phone company that calls the customer's telephone and gives him a ready connection (calling in the destiny). This system also avoids the uncompleted call, but presents a series of disadvantages:

- The user needs to access an Internet “site” and identify himself by a password to process his calls. In most of the countries (for example in Brazil) the Internet is very slow (in relation to the Internet access time in the USA), making the task of entering an application built in html delayed and non stimulating; besides that, the telephone database is not stored in the users' computer, and so cannot be maintained without the user needing to be connected to the Internet;
- The user needs to enter in an Internet browser to access a “site” every time he wants to accomplish a call. In entering the “Web”, he receives all kind of advertising orientation, what distracts the user and can induce him to browse randomly, representing unnecessary cost for the company that uses this service. This fact took many companies to forbid the habilitation of Internet browsers for all the users of an Intranet, what also disables the accelerated expansion of this phone calling service; and
- The user needs to enter in an Internet browser to access a “site” every time he wants to accomplish a call. In entering the “Web”, he receives all kind of advertising orientation, what distracts the user and can induce him to browse randomly, representing unnecessary cost for the company that uses this service. This fact took many companies to forbid the habilitation of Internet browsers for all the users of an Intranet, what also disables the accelerated expansion of this phone calling service; and
- In this process an user that uses a single line to access the Internet and to speak on the phone, needs to call and to hang up by hand the connection to receive the “callback” call.

In brief, to sell the “callback” services previously described, a telephonic company undergoes a slow and high costing routine, what demands a great

involvement of salespersons, technicians and in some cases the installation of equipment, including changes in the configurations of customer's PABX.

"TELEPHONE CALL SIGNALING PROCESS VIA INTERNET, SIMILAR TO CALLBACK, SUPPORTED BY APPLICATIONS SUCH AS COMPUTER ADDRESS BOOKS FOR SINGLE AND MULTI-USER", that is the object of the present patent of invention, was developed to eliminate the disadvantages of the already mentioned systems, by propitiating a "callback" signaling by the Internet, with the following advantages:

- a) It Allows " callback " type phone calls without the accomplishment of uncompleted calls;
- b) It doesn't demand sophisticated equipment (what implies in high hardware, transportation and technical service costs), it is enough that the user have an ordinary computer with "Windows" and connection to the Internet, such connection being either in the "dial-up", proxy, or dedicated form, and 1 megabyte of hard disk space, such conditions easily found in corporations and even in homes, what implies in smaller product costs (relative to the existent systems), a better performance from the "software" as a user's work tool and a smaller time to make connections. To make a call, the user simply enters in the phonebook-like application, locates or types the wanted telephone and presses ENTER. Five to ten seconds later he receives the ready connection (calling in the destiny), in his common telephone;
- c) In case the user uses net-linked computers, it is not necessary a modem in each computer, it is enough that one of the computers have a modem and a connection with the Internet, what is a great progress that turns possible the popularization of the use of computer phonebooks in corporations.
- d) There is no need for access the Internet to make maintenance of the phone book, of the other databases and of the "software" configurations;
- e) The Internet is used in this process just for the sending of a small data pack (containing the customer's identification and the telephone number he wants to call) to the "callback" supplier phone company, without the use of Internet Browsers nor "e-mail" "software" and avoiding unwanted or undesirable access to the Web;

- f) An user that uses a single line to access the Internet and to speak benefits himself of a process that automatically turns on and off his "dial-up" connection, for him to complete a "callback" call.
- g) The application has a window that allows institutional advertising presented through "banners", where can be the linking with "Web" pages, but in a way controlled by the "software" configuration, that can be personalized according to the interests of the company that contracted the "callback" service or supplied the application;
- h) The demonstration and eventual installation of the application in probable users are very easy, with the option of free test, what brings to the popularization and eases the commercialization of the application;
- i) The application even allows to accomplish scheduled calls (with predefined schedule);
- j) The application can register the processed calls (day, hour, called telephone...), in a text file, allowing a call control by the user;
- k) The process allows the companies to control and register the phone calls by cost centers, since each user receives an exclusive signal that is recorded in the application, that is sent to the "callback" company every time that a call is requested;
- l) The process doesn't congest the customer's net, once it just signals in this net the call to be accomplished, after that the connection happens through the user's conventional telephone;
- m) The sales of "callback" services by the signaling process object of this patent are substantially faster, without demanding equipment, the clients being able to copy the "software" by the Internet, fill a register form in the own "software", to test and to begin the use of the service in a few minutes, without demanding to the final user any knowledge of Internet, "e-mail" or Internet browsers;
- n) It Allows the "callback" supplier company to make an application internal configuration with options like: *authorized numbers, dialed telephone number automatic correction in agreement with the wanted dialed format, blocking of telephones and area codes that are not permitted to the user*

and *LCR (Least Cost Routing)*, that can be used by the "callback" supplier company to instruct the application to use, for example: A certain Server or PIN, when a call goes to Europe, another Server or PIN when the user's connection goes to South America and so on, benefiting the company with the option for alternative ways, that can even be cheaper to the users;

- o) It allows the application to be commanded to try to connect with more than a receptor server (computer that receives from the application a call solicitation and interacts with a Switch or pack nets of the "callback" supplier company to give to an user a "callback" call), what rises the safety of the service once it allows the automatic use of "backup" servers, in case of inactivity of the main server;
- p) It allows the user to change the telephone (or extension line) where he wants to receive the calls processed by the application, what facilitates that it also be used in personal computers by users in transit (lap-tops or notebooks); and
- q) The application can be called by a command line or in "Component Object Mode", what means that it is prepared to interact or to be integrated with the main tools of a computer, like for example: "MS OFFICE" package from Microsoft, Business Administration Software (like SAP), Telemarketing or Telecommunications Software or others.
- r) The application allows the user to make Conference Call, which means that simultaneous calls can be made through it to different places (meeting).

For better understanding of the present patent, we enclosed:

FIGURE 1., that describes the process for signaling "callback" calls via Internet;

FIGURE 2., that shows a block diagram of the application that accomplishes the process for signaling "callback" calls via Internet; and

FIGURE 3., that shows a block diagram of the routine of use restricted to the operator of the "callback" service, that allows the internal configuration of the application described in the figure 2.

According to the **FIGURE 1.**, a phone call by this process happens in the following way:

1. the user should have the phonebook type application type installed in his computer (1) or (10) with the following characteristics: capacity to run Windows 95, 98 or NT; connection with the Internet, either dialed in "dial-up" form, proxy, or dedicated;
2. The user will be previously registered in a telephonic company enabled to process "callback" calls from an ordinary Switch or from pack nets, like for example: Frame Relay, ATM (Asynchronous Transfer Mode) or TCP-IP;
3. The user enters in this patent's application by clicking in the corresponding icon, in the main window of his computer;
4. The user locates the number he wants to call in the application (if the wished number is already stored in the "software" database), or types the wished number and clicks on Dial or Enter;
5. From this point, the user views a Window indicating the progress of the call and the application follows one of the two ways following described:
 - 5.1. In case of multi-user environment:
 - 5.1.1. The application sets up a data pack containing the call solicitation and sends it to the Internet Server of the customer's net (2) through HTTP or TCP door;
 - 5.1.2. The Internet Server of the customer's net (2) sends the data pack via public Internet (3) to the receptor(s) server(s) (4) able to receive a data pack and interact with ordinary telephony "switches" (5) and/or with routers (6) (equipment that manage information destined to pack nets (7)), in the common telephony net (8), to give a "callback" call in the user's telephone (9);
 - 5.2. In case of single user environment: the application sets up a data pack containing the call solicitation in the user's computer (10) and sends it via Internet (3) to the receptor(s) server(s) (4) able to receive a data pack and interact with ordinary telephony "switches" (5) and/or with

routers (6) (equipment that manage information destined to pack nets (7)), in the common telephony net (8), to give a "callback" call in the user's telephone (11); and

6. Five to ten seconds after the user having clicked Dial or Enter (stage 4), his telephone rings, when he picks up it, there is a ready phone call, calling in the destiny.

The application trials five times to deliver the data pack to the receptor(s) server(s) (4), and stop trying when receives an OK form receptor(s) server(s), however, in 99% of the cases the pack is delivered in the first trial.

According to the Block Diagram from **FIGURE 2.**, and observing the keywords enhanced in italic types at the same figure, the application that accomplishes the process of signaling object of the present patent of invention works in the following way:

- I. When the user, previously registered in the phone company enabled to process "callback" type phone calls, access the phonebook type application (*start*), the application firstly verifies if the user is in a single user computer or in a computer linked to a net that has an Internet Server (*single/net*). In case of single user environment, the application configures the user's computer to "auto dial" (*configures auto dial*) and access the application that provides Internet access to the computer (*call dialer*). In case the computer is linked to a net that has a an Internet Server, the application informs the Internet Server that it needs a connection with the Internet (*verify connection*). In brief, in an automatic way (transparent to the user), the application is able to access the Internet from the Internet Server of a computer net (Server of dialed or dedicated Internet), and also is able to access the Internet from applications that dial to Internet Providers to connect a single user computer, saving time for the user and eliminating the need for knowledge of Internet, Internet browsers and how to access the Internet;
- II. The main menu (*Menu*), is showed to the user with the following options in the screen: *Exit, Dial, Register, Search, Edit, Delete, Enter, Configure and Help*. The main Menu screen still has a window with the list of registered names and telephones, endowed with an ordinary "roll-over" process common in "Windows" applications, a virtual keyboard that allows the user to type a telephone number to select a number, a window

that shows the number of selected or typed telephone, and a window of institutional “banner” that can link the user to Internet pages or to “e-mail” addresses previously configured by the supplier of the application. This window can even contain an APLLET (program routine that can for example: to seek for the main titles of a newspaper’s news directly in the newspaper’s office, allowing the user to access the news text by clicking on the titles text) The processes of exit the application, register a name or telephone, search for a name or telephone on the list, edit an already filed name or telephone, delete a name or telephone and obtain help, are those common in Windows applications, and so they are not detailed in the figure 2;

- III. In case the user chooses *Exit*, the application will disconnect the Internet (if the connection is still active and is a “dial-up” type one), will recover the original “auto dial” configurations of the user’s computer (if the connection is a “dial-up” type one), and will end its running;
- IV. In case the user chooses *Register*, the application will show the name and telephone register, with instructions on valid contents, and will permit the inclusion of registers in the names and telephones list and finally will come back to the main menu (*Menu*);
- V. In case the user chooses *Search*, the user can choose if he will make the search by name or by telephone. The application will search in the telephone database for the typed data, will come back to the main menu (*Menu*), and will show the data in boldface, in case it is found. In case it is not found, a message informing such fact is showed;
- VI. In case the user chooses *Edit*, he locates in the phone list the register he wants to edit and a screen is showed containing the data for edition, allowing its correction by the processes common to “Windows” applications. After the correction, the application comes back to the main menu (*Menu*);
- VII. In case the user chooses *Delete*, the application will request a confirmation of the exclusion of the selected data, and after excluding or not these data, it will come back to the main menu (*Menu*);
- VIII. In case the user chooses *Configure*, a screen is showed with the following options: *Register Form for test/definitive use* of the service,

Configure Internet/Net and *Configure user's Passwords*, with the following processes:

VIII.1 *Register Form for test/definitive use*: It allows the user to choose if he will register himself for testing the service or use the service in a definitive way, in that the application request the registration data (the user's name, company, e-mail, address, phone, fax, comments...), and shows options so that the user sends these data to the "callback" supplier company via "e-mail" or "fax". After receiving a register form for test or definitive use of the service, the "callback" supplier sends to the user an Instruction of Use of the Service and a Password that authorizes the user to use the service, that should be inserted in the application, as below described in the process *Configure users' passwords* (item VIII.3);

VIII.2 *Configure Internet/Net*: it allows the user to inform if he is operating in a single user computer or in a computer linked to a net of computers that has access to the Internet from an Internet Server (dialed or dedicated), (*single/net*);

VIII.2.1. In case of single user environment, the application sets a "flag" indicating single user (*flag "single"*) and it comes back to the *Configure* menu waiting the user's OK;

VIII.2.2. In case of a net environment, the application sets a "flag" indicating net (*flag "net"*), searches automatically the number of the Internet Server and HTTP door that are configured in the user's computer and he/she requests the user to accept or modify the data shown in the screen:

- HTTP/Proxy Server;
- HTTP/Proxy door;
- TCP/Mapping Server;
- TCP/Mapping door; and

- VIII.2.3. The application verifies if the user has access via TCP/Mapping, and sets a "flag" indicating this, to give preference to work in TCP/Mapping (TCP/Mapping?) in relation to working in HTTP/Proxy, turning the process faster;
- VIII.2.4. After the user's OK, the application updates the configuration file (*update file*) and comes back to the *Configure* menu; and
- VIII.3 *Configure user's passwords*: In this option, the user informs the password sent by the service supplier and the telephone or extension line where he wants to receive the "callback" connections, a routine that even allows an user to accomplish calls from several telephones or extension lines through the inclusion of several passwords; This screen also allow to access the option *Register Form for test/definitive use*, in case the user has not sent his registration data to the service supplier. Another option found in this screen is if the application should minimize or not the software after the accomplishment of a call (*Minimize?*). When receiving the user's Ok (*OK?*), the application updates the configuration file (*update file configurations*), and comes back to the *Configure* menu; and
- IX. In case the user clicks *Dial* or *Enter*, the application will make the process to Transmit log (*transmit "log "*):
- IX.1 It will verify if there is a telephone number typed in the selected or typed number indication window (*Is there a number in the window?*). In case the number has not been typed by the user, the application will verify if there is a phone number selected in the phonebook window (*Is there a number in the phonebook?*). If there is a number, it will copy the telephone number in the selected or typed number indication window (*Copy number from phonebook*);
- IX.2 It will verify if the user wants to accomplish a call immediately or wants to program a call for a future schedule. If the user wants the second option, it allows him to indicate the wanted schedule and after that it generates a routine that stays in his computer's memory and awaits the schedule indicated by the user to process the scheduled call;
- IX.3 It will verify the *single/net* "flag". In case the environment is set up as "single-user", the application verify if the Internet is still available, otherwise it provides a new connection, as described in the item I. In case the environment is set up as "net", the application verifies the

“TCP/Mapping” or “HTTP/Proxy” “flag”, giving preference to use the “TCP/Mapping” standard to transmit the log;

- IX.4 It will connect with the receptor server of the “callback” supplier company via HTTP or TCP standard (*connect with company*). The application can be instructed to try to connect with more than a receptor server (in case one of the servers is inactive), or to choose a specific receptor server, or a specific PIN (Personal Identification Number), according to the number dialed by the user, following the *Option of LCR (Least Cost Routing)* process, described below;
- IX.5 The application will send an IP data pack (*transmit data*), to the server of the “callback” supplier company. This data pack basically will contain the user’s identification and the telephone to be called, could contain other data and also have a data cryptography in a pattern previously accorded with the “callback” supplier company.
- IX.6 While the call is provided by the “callback” supplier company, the application shows to the user a screen indicating that the call is being processed (*call in progress*). In case the *minimize* “flag” is set up as *yes*, the application window is minimized in the user computer’s main screen soon after the screen that indicates the call is being processed ends its task; and
- IX.7 In case the *minimize* “flag” is selected as *no*, the application comes back to the main menu.

According to the **FIGURE 3.**, the application still has a program with access restricted to the operator of the “callback” service (*Operator Menu*), that allows to configure internally the application, with the following options: *Authorized numbers, Dialing Format, blocking of telephones and area codes that are not permitted to the user and option of LCR (Least Cost Routing)*. These options allow the following processes:

- A. *Authorized numbers*: It allows the “callback” supplier company to limit the telephones numbers the user can dial. Whenever this list has a content, the application will only process calls to the telephone numbers inserted on this list;
- B. *Dialing format*: It allows the “callback” supplier company to correct user’s

common mistakes, like the improper insert of operator's codes or insert of 00 before the number the user wants to call;

- C. *Blocking*: It allows the "callback" supplier company to block calls to some telephone numbers or prefixes, like for example: it can block calls to local telephone numbers, to a determined country, to sex phone services, etc. Whenever this list has a content, the application won't process calls to the prefixes or to the telephone numbers inserted on the list; and
- D. *LCR Option*: LCR is an acronym for Least Cost Routing, and allows the application to be instructed to try to connect with more than a receiving server (in case one of the servers is inactive), or to choose a specific receiving server, or a specific PIN (Personal Identification Number) according to number dialed by the user. The application can work for example, with a certain receiving Server or PIN, when a call goes to Europe, other receiving Server or PIN when a call goes to South America and so on, deriving benefit from alternative roads to the users' calls, that can even be more cheap.

All the options of the above mentioned *Operator Menu* possess a sub-menu to *include*, *edit* and *Delete* data usual in Windows applications, for the usual data maintenance of the Routine.

Despite of using commands that are conventional to computer software, such as Edit, Include, Exit, Delete, etc., the teachings of this invention is not limited to simple changes made in these commands, being well characterized as novelty the utilization of a phonebook-type application, that immediately connects itself to the Internet, as soon as started, and eliminates the need for Internet browsers to signal a "callback" phone call.

CLAIMS:

1. "TELEPHONE CALL SIGNALING PROCESS VIA INTERNET, SIMILAR TO CALLBACK, SUPPORTED BY APPLICATIONS SUCH AS CIMPUPER ADDRESS BOOKS FOR SINGLE AND MULTI-USER" **characterized by** a phonebook type application that performs the following operations: connects the computer (10) (in case of single user environment), or computer(s) (1) (in case of multi-user computers) with the Internet, either by "dial-up", "proxy", or dedicated dialing, as soon as started, without using Internet browsers; Allows the user to localize the number he wants to call in the application, or to type the wanted number and to click in Dial or to press Enter; sets up a package of data with the solicitation of the call; In case of multi-user environment: sends the data pack to the Internet Server of the customer's net (2) through HTTP or TCP door; The Internet Server of the customer's net (2) sends the data pack via public Internet (3) to the receptor(s) server(s) (4) that receive the data pack and interact with ordinary telephony "switches" (5) and/or with routers (6) that manage information destined to pack nets (7), in the common telephony net (8), and give a "callback" call in the user's telephone (9); In case of single user environment: the application sends the data pack via Internet (3) to the receptor(s) server(s) (4) that receive the data pack and interact with ordinary telephony "switches" (5) and/or with routers (6) that manage information destined to pack nets (7), in the common telephony net (8), and give a callback call in the user's telephone (11); Five to ten seconds after the user having clicked Dial or pressed Enter (stage 4), his telephone rings and he answers a ready phone call, calling in the destiny; The application trials five times to deliver the data pack to the receptor(s) server(s) (4), and stop trying when receives an OK from the receptor(s) server(s).
2. TELEPHONE CALL SIGNALING PROCESS VIA INTERNET, SIMILAR TO CALLBACK, SUPPORTED BY APPLICATIONS SUCH AS COMPUTER ADDRESS BOOKS FOR SINGLE AND MULTI-USERS, **characterized by** a process in the following sequence:
 - I. When the user, previously registered in the phone company enabled to process "callback" type phone calls, access the phonebook type application (*start*), the application firstly verifies if the user is in a single user computer or in a computer linked to a net that has an Internet Server

(*single/net*). In case of single user environment, the application configures the user's computer to "auto dial" (*configure auto dial*) and access the application that provides Internet access to the computer (*call dialer*). In case the computer is linked to a net that has an Internet Server, the application informs the Internet Server that it needs a connection with the Internet (*verify connection*).

- II. The main Menu (*Menu*), is showed to the user with the following options in the screen: *Exit, Dial, Register, Search, Edit, Delete, Configure and Help*. The main Menu screen still has a window with the list of registered names and telephones, endowed with an ordinary "roll-over" process common in "Windows" applications, a virtual keyboard that allows the user to type a telephone number to select a number, a window that shows the number of selected or typed telephone, and a window of institutional "banner" that can link the user to Internet pages or to "e-mail" addresses previously configured by the supplier of the application. This window can even contain an APLLET (program routine that can for example: to seek for the main titles of a newspaper's news directly in the newspaper's office, allowing the user to access the news text by clicking on the titles text)
- III. In case the user chooses *Exit*, the application will disconnect the Internet (if the connection is still active and is a "dial-up" type one), will recover the original "auto dial" configurations of the user's computer (if the connection is a "dial-up" type one), and will end its running;
- IV. In case the user chooses *Register*, the application will show the name and telephone register, with instructions on valid contents, and will permit the inclusion of registers in the names and telephones list and finally will come back to the main menu (*Menu*);
- V. In case the user chooses *Search*, the user can choose if he will make the search by name or by telephone. The application will search in the telephones database for the typed data, will come back to the main menu (*Menu*), and will show the data in boldface, in case it is found. In case it is not found, a message informing such fact is showed;
- VI. In case the user chooses *Edit*, he localizes in the phone list the register he wants to edit and a screen is showed containing the data for edition, allowing its correction by the processes common to "Windows"

applications. After the correction, the application comes back to the main menu (*Menu*);

VII. In case the user chooses *Delete*, the application will request a confirmation of the exclusion of the selected data, and after excluding or not these data, it will come back to the main menu (*Menu*);

VIII. In case the user chooses *Configure*, a screen is showed with the following options: *Register Form for test/definitive use* of the service, *Configure Internet /Net* and *Configure user's Passwords*, with the following processes:

VIII.1 *Register Form for test/definitive use*: It allows the user to choose if he will register himself for testing the service or use the service in a definitive way, in that the application request the registration data (the user's name, company, "e-mail", address, phone, fax, comments...), and shows options so that the user sends these data to the "callback" supplier company via "e-mail" or "fax". After receiving a register form for test or definitive use of the service, the "callback" supplier sends to the user an Instruction of Use of the Service and a Password that authorizes him to use the service, that shall be inserted in the application, as described in the process *Configure users' passwords* (item VIII.3 below);

VIII.2 *Configure Internet/Net*: It allows the user to inform if he is operating in a single user computer or in a computer linked to a net of computers that has access to the Internet from an Internet Server (dialed or dedicated), (*single/net*);

VIII.2.1. In case of single user environment, the application sets a "flag" indicating single user (*flag "single"*) and it comes back to the configure Menu waiting for the user's OK;

VIII.2.2. In case of a net environment, the application sets a "flag" indicating net (*flag "net"*), searches automatically the number of the Internet Server and HTTP door that are configured in the user's computer and requests the user to accept or modify the data shown in the screen:

- HTTP/Proxy Server;
- HTTP/Proxy door;
- TCP/Mapping Server;

- TCP/Mapping door; and

VIII.2.3. The application verifies if the user has access via TCP/Mapping (*TCP:Mapping?*), and sets a “flag” indicating this, to give preference to work in TCP/Mapping in relation to working in HTTP/Proxy, turning the process faster;

VIII.2.4. After the user's OK, the application updates the configuration file (*update file*) and comes back to the Configure Menu; and

VIII.3 *Configure user's passwords*: In this option, the user informs the password sent by the service supplier and the telephone or extension line where he wants to receive the “callback” connections, a routine that even allows an user to accomplish calls from several telephones or extension lines through the inclusion of several passwords; This screen also allows to access the option *Register Form for test/definitive use*, in case the user has not sent his registration data to the service supplier (*Register Form for test/definitive use?*). Another option found in this screen is if the application should minimize or not the software after the accomplishment of a call. (*Does it minimize?*). When receiving the user's OK (*OK?*), the application updates the configuration file (*update file configurations*), and comes back to the *configure menu* ; and

IX. In case the user clicks Dial or Enter, the application will make the process to Transmit log (*transmit " log "*): It will verify if there is a telephone number typed in the selected or typed number indication window (*Is there a number in the window?*). In case the number has not been typed by the user, the application will verify if there is a phone number selected in the phonebook window (*Is there a number in the phonebook?*). If there is a number, it will copy the telephone number in the selected or typed number indication window (*Copy number from phonebook*);

X. It will verify if the user wants to accomplish a call immediately or wants to program a call for a future schedule. If the user wants the second option, it allows him to indicate the wanted schedule and after that it generates a routine that stays in his computer's memory and awaits the schedule indicated by the user to process the scheduled call; It will verify the single/net “flag”. In case the environment is set up as “single-user”, the application verify if the Internet is still available, otherwise it

provides a new connection, as described in the item I. In case the environment is set up as “net”, the application verifies the “TCP/Mapping” or “HTTP/Proxy” “flag”, giving preference to use the “TCP/Mapping” standard to transmit the log;

- X.1 It will connect with the receptor server of the “callback” supplier company via HTTP or TCP standard (*connect with company*). The application can be instructed to try to connect with more than a receptor server (*in case one of the servers is inactive*), or to choose a specific receptor server, or a specific PIN (*Personal Identification Number*), according to the number dialed by the user, following the *Option of LCR (Least Cost Routing)* process, as described below;
- X.2 The application will send an IP data pack (*transmit data*), to the server of the “callback” supplier company. This data pack will contain the user's identification and the telephone to be called, could contain other data and also have a data cryptography in a pattern previously accorded with the “callback” supplier company.
- X.3 While the call is provided by the “callback” supplier company, the application shows to the user a screen indicating that the call is being processed (*call in progress*). In case the *minimize* “flag” is set up as *yes*, the application window is minimized in the user computer's main screen soon after the screen that indicates the call is being processed ends its task; and
- X.4 In case the *minimize* “flag” is selected as *no*, the application comes back to the main Menu.

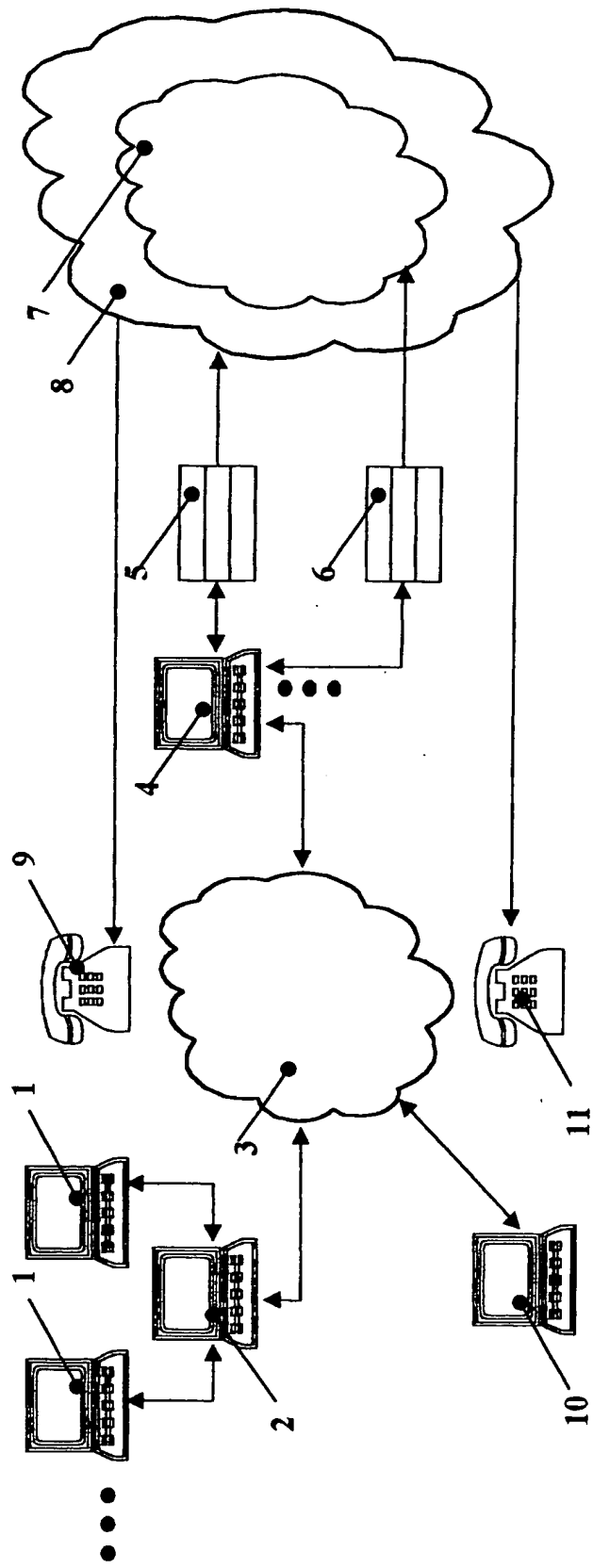


FIG. 1

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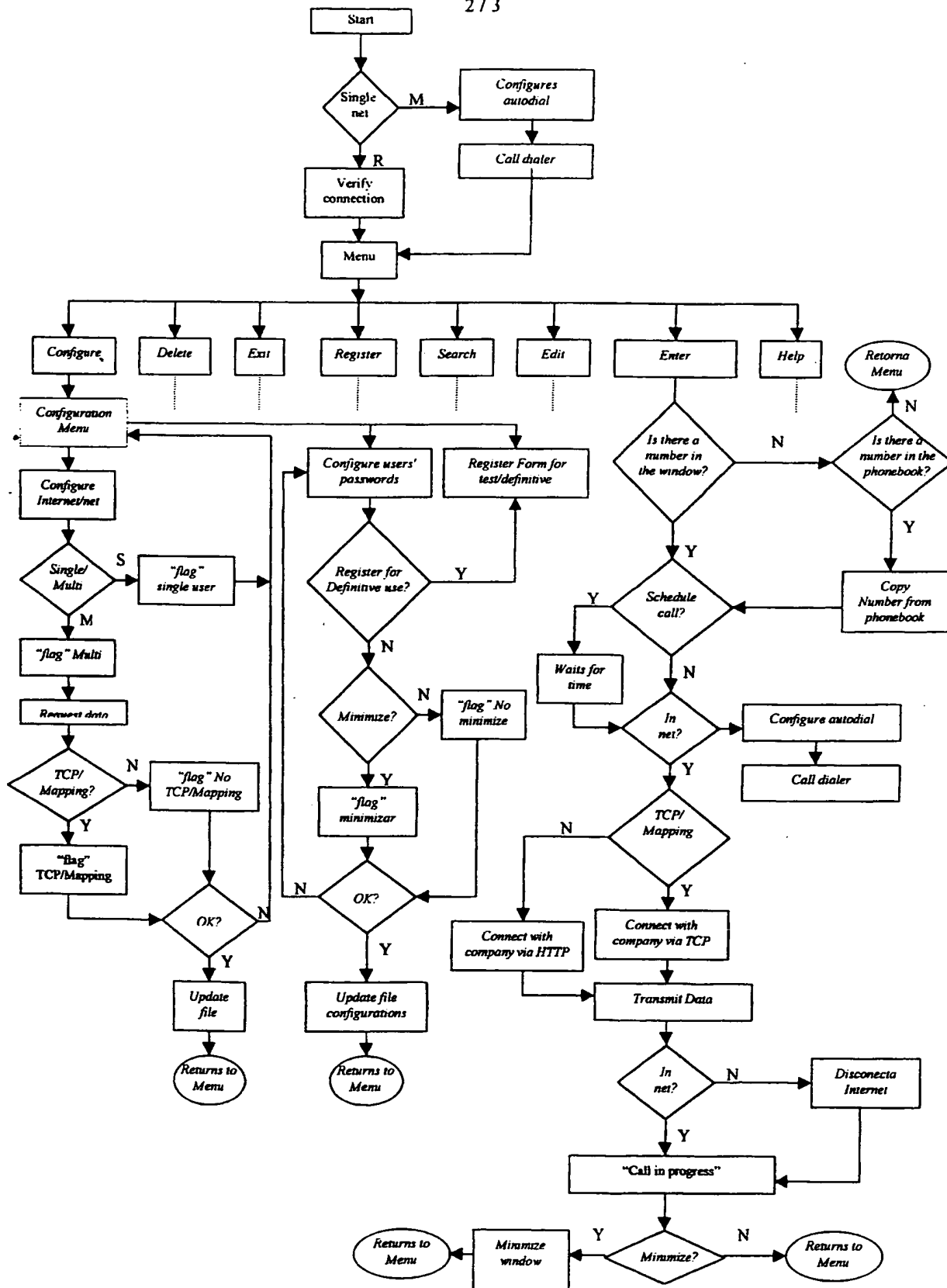
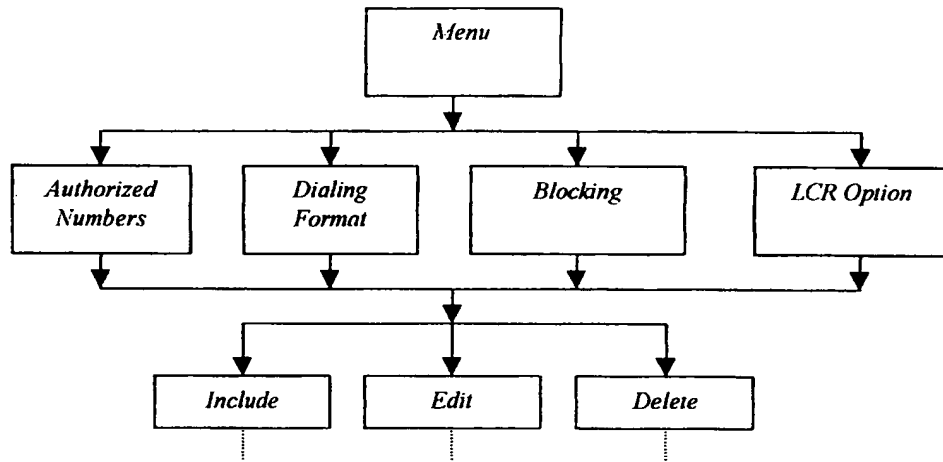


FIG. 2

**FIG. 3**